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Data to the mollusc fauna of the Carpathian Biosphere Reserve, Ukraine (Mollusca)

by
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Abstract: Results of malaco-faunistical investigations in four nature reserves of Sub-Carpathia (Ukraine) carried out in July, 1998 are given. A list of mollusc species collected in the Lonka (Kuzi), the Kvaszníj (Kvasnivchik), the Haverla (Goverla) and the Uglya (Mala Uholjka) reserves is presented.
Key words: Mollusca, Gastropoda, Lonka, Kvaszníj, Haverla, Uglya, list of species

Introduction

Within the framework of a cooperation agreement between the Hungarian and the Ukrainian Academies of Sciences I had an opportunity in July, 1998 to make malaco-faunistical investigations in four nature reserves of Sub-Carpathia (Ukraine), i.e. the Lonka (Kuzi), the Kvaszníj (Kvasnivchik), the Haverla (Goverla) and the Uglya (Mala Uholjka) biosphere reserves. My principal goal was to make observations on the faunal elements of the studied areas and to determine the species composition of the recent mollusc fauna.

Area studied

About 35,000 hectares of the territory of the 12,800 square kilometres of Sub-Carpathia belong to strictly protected and guarded nature reserves under the management of the Carpathian Biosphere Reserve. This organization is a member of the Biosphere Reservations Worldnet of UNESCO and its administration centre is at Rahó (Rakhiv).

The formation of the mountains with their various geomorphological structures dates back to the Miocene. Climate ranges from temperate continental to the extremities of the sub-alpine and alpine zones. Weather is changeable with high precipitation. The most characteristic type of vegetation is closed forest consisting of extensive stretches of beech, oak and Norway spruce and is interspersed with ash, alder and maple. There are alder groves along the mountain streams which are frequent all over the area.

History of research

From 1939 to the present, a number of malacologists made collectings within the area or in the vicinity of what is now territory of nature reserves of Sub-Carpathia. For example, E. Dudich collected in 1939, L. Imre in 1940, L. Soós in 1941, J. Wagner in 1941, M. Rotarides in 1942 (Imre 1941, Rotarides 1944, Soós 1940, 1941, 1943, Wagner 1942) and A. A. Bajdashnikow in 1982, 1983 and 1988. However, comprehensive list of species was published by Bajdashnikow (1988) only, who listed 71 species and five subspecies. The spelling of species names used originally by the authors has not been changed.

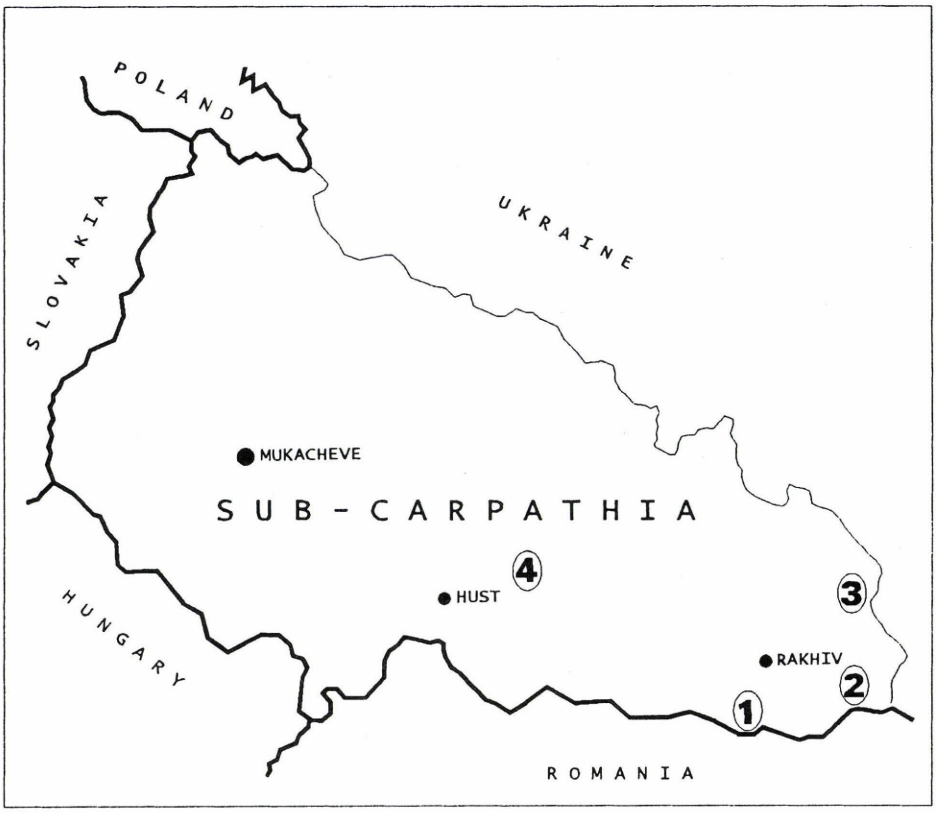

Fig. 1. Map of Sub-Carpathia. 1 = Lonka (Kuzi): Tempa Mountain (1089 m), valley of Jalina Brook; 2 = Kvasznij (Kvasnivchik): Petros Mountain (1780 m), valley of Kvasznij Brook; 3 = Haverla (Goverla): Haverla Mountain (2061 m), valley of Haverla Brook; 4 = Uglya (Mala Uholjka): Uglya Mountain (663 m), valley of Little Uglya Brook

Most of the collectings by Hungarian malacologists were made in the neighbouring areas of the present reserves. The investigations carried out between 1940 and 1942 in the Haverla Mountain (Hoverla, Goverla) and the valley of the Haverla Stream are exceptions, since 18 species were reported from this particular area, which is part of the biosphere reserves. The majority (ten species) were collected below 1250 m a.s.l., mainly around the old lodge. Only two species are known from the zone between 1450 and 1500 m, five species from up to 1600 m and one species from up to 1800 m.

Species recorded from the Haverla up to 1250 m: *Paladilhiopsis carpathica*, *Clausilia dubia*, *C. cruciata*, *Laciniaria cana*, *L. turgida*, *Zonitoides radiatulus*, *Daudebardia (Carpathica) calophana*, *Trichia bakowskii*, *Arianta aethiops*, *Ena montana*.

Species recorded from the Haverla between 1450 and 1500 m: *Lehmannia marginata*, *Deroceras (Hydrolimax) huculorum*.

Species recorded from the Haverla up to 1600 m: *Arion circumscriptus*, *A. subfuscus*, *Limax cinereo-niger*, *Bielzia coerulans*, *Iphigena plicatula*.

Species recorded from the Haverla between 1550 and 1800 m: *Semilimax (Semilimax) Kotulae.*

More or less widespread species distributed all over the Carpathians (11): *Vitrea diaphana, V. subrimata, Helicolimax pellucidus, Zenobiella vicina, Z. incarnata, Perforatella dybothryon, Euomphalia strigella, Arianta arbustorum, Isognomostoma personatum, Cepaea vindobonensis, Helix pomatia.*

Species endemic to the Carpathians (one): *Helicigona faustina.*

Species recorded from the valley of the Kvasznij Brook (Kvasnivchik Valley) (one): *Trichia bakowskii.*

Species recorded from the Lonka (one): *Trichia hispida.*

Prior to Bajdashnikow (1988), no species had been recorded from Uglya.

Species listed by Bajdashnikow (1988, including collectings in 1982–83): *Acicula parcelineata, A. polita, Carychium minimum, C. tridentatum elongatum, Cochlicopa lubrica, C. lubricella, Argna bielzi, Acanthinula aculeata, Vallonia costata, V. pulchella, Pupilla sterri, Vertigo substriata, V. pygmaea, V. modesta alpestris, Columella columella, Truncatellina cylindrica, Granaria frumentum, Chondrina avenacea, Pyramidula rupestris, Merdigera obscura, Ena montana, Chondrula bielzi, Serrulina serrulata, Cochlodina orthostoma, C. laminata, Ruthenica filograna, Macrogastra tumida, M. latestriata latestriata, Clausilia cruciata, C. pumila pumila, C. dubia, Balea stabilis, Vestia gulo, V. turgida turgida, V. turgida procera, Bulgarica cana, Succinea putris, Succinella oblonga, Oxyloma elegans, Punctum pygmaeum, Arion subfuscus, A. sylvaticus, Euconulus fulvus, Vitrina pellucida, Semilimax semilimax, S. Kotulai, Eucobresia nivalis, Vitrea diaphana diaphana, V. transsylvanica, V. crystallina, Nesovitrea hammonis, Aegopinella pura, A. nitens, A. epipedostoma iuncta, Oxychilus depressus, O. orientalis, Carpathica calophana, Zonitoides nitidus, Deroceras laeve, D. rodnae, D. moldavicum, D. occidentale, Lehmannia marginata, L. macroflagellata, Limax cinereoniger, Bielzia coerulans, Bradybaena fruticum, Edentiella bakowskii, Perforatella bidentata, P. dibothrion, Monachoides vicina, Faustina faustina, Arianta arbustorum, A. aethiops petrii, Isognomostoma isognomostoma, Helix pomatia.*

From the above list, the following 22 species and 3 subspecies were mentioned as collected in the Uglya Biosphere Reserve: *Acicula parcelineata, Carychium minimum, C. tridentatum elongatum, Cochlicopa lubrica, C. lubricella, Vallonia costata, V. pulchella, Pupilla sterri, Vertigo pygmaea, Pyramidula rupestris, Ena montana, Chondrula bielzi, Serrulina serrulata, Cochlodina laminata, Ruthenica filograna, Clausilia pumila pumila, C. dubia, Vestia turgida procera, Succinella oblonga, Semilimax Kotulai, Eucobresia nivalis, Aegopinella epipedostoma iuncta, Deroceras laeve, D. moldavicum, Perforatella dibothrion.*

Material and methods

A total of 2200 recent specimens were collected by hand-searching in 120 sites of the area examined. Regions visited, height above sea level and number of specimens are summarized as follows:

Biosphere Reserve	Region	Height	Number of specimens
Lonka	Tempa Mountain	up to 1000 m	567
Kvasznij	Kvasznij Brook	up to 1600 m	428
Haverla	Haverla Brook, Haverla Mountain	up to 1800 m	613
Uglya	Little Uglya Brook, Uglya Mountains	up to 663 m	590

Slugs were conserved in 75% ethanol. Samples of the collected material are deposited in the Mollusca Collection of the Hungarian Natural History Museum and the rest in the European terrestrial material of the Hungarian Marine Collection.

Results

Fifty-one recent species were collected in the four biosphere reserves. These are listed below. Nomenclature and systematics follow Vaught (1989), Goto & Poppe (1996) and Millard (1996).

Gastropoda
Family Pupillidae
Argna bielzi (E. A. Rossmässler, 1859) — Uglya.
Family Buliminidae
Ena montana (Draparnaud, 1801) — Lonka, Kvasznij, Haverla.
Family Clausiliidae
Balea stabilis (L. Pfeiffer, 1847) — Lonka, Haverla, Uglya.
Bulgarica cana (Held, 1836) — Lonka.
Clausilia cruciata G. Studer, 1820 — Lonka, Haverla.
Clausilia dubia (Draparnaud, 1805) — Lonka, Haverla, Uglya.
Clausilia pumila C. Pfeiffer, 1828 — Lonka.
Cochlodina laminata (Montagu, 1803) — Lonka, Uglya.
Cochlodina orthostoma (Menke, 1830) — Lonka, Haverla, Uglya.
Macrogastra latestriata (A. Schmidt, 1857) — Lonka, Kvasznij, Haverla, Uglya.
Macrogastra plicatula (Draparnaud, 1801) — Haverla.
Macrogastra tumida (E. A. Rossmässler, 1836) — Haverla.
Serrulina serrulata (L. Pfeiffer, 1847) — Uglya.
Vestia gulo (E. A. Bielz, 1859) — Lonka, Kvasznij, Haverla, Uglya.
Family Succineidae
Succinea putris (C. Linnaeus, 1758) — Kvasznij, Haverla, Uglya.
Family Gastrodontidae
Zonitoides nitidus (O. F. Müller, 1774) — Uglya.
Family Euconulidae
Euconulus fulvus (O. F. Müller, 1774) — Uglya.
Family Vitrinidae
Eucobresia nivalis (Dumont et Mortillet, 1852) — Haverla.
Vitrea crystallina (O. F. Müller, 1774) — Haverla.
Vitrea diaphana (G. Studer, 1820) — Haverla.
Vitrea transsylvanica (Clessin, 1877) — Haverla.
Family Zonitidae
Aegopinella nitens (Michaud, 1831) — Lonka, Haverla.
Aegopinella pura (J. Alder, 1834) — Haverla.
Nesovitrea hammonis (Ström, 1765) — Haverla.
Oxychilus depressus (Sterki, 1880) — Kvasznij, Uglya.
Oxychilus draparnaudi (H. H. Beck, 1837) — Uglya.
Oxychilus orientalis (Clessin, 1887) — Lonka, Kvasznij, Haverla.
Family Daudebardiidae
Carpathica calophana (Westerlund, 1881) — Uglya.
Family Limacidae
Bielzia coerulans (J. M. Bielz, 1851) — Haverla, Uglya.
Deroceras reticulatum (O. F. Müller, 1774) — Uglya.
Deroceras sturanyi (H. Simroth, 1894) — Uglya.
Lehmannia marginata (O. F. Müller, 1774) — Uglya.
Limax cinereoniger Wolf, 1803 — Haverla, Uglya
Limax maximus C. Linnaeus, 1758 — Uglya.
Family Hygromiidae
Monachoides incarnata (O. F. Müller, 1774) — Haverla.
Perforatella bidentata (J. F. Gmelin, 1791) — Lonka.
Perforatella dibothryon (M. Kimakowicz, 1884) — Lonka, Uglya.

Perforatella vicina (E. A. Rossmässler, 1842) — Lonka, Kvasznij, Haverla, Uglya.
Trichia hispida (C. Linnaeus, 1758) — Lonka, Kvasznij.
Trichia lubomirskii (Slosarski, 1881) — Lonka, Kvasznij.
Trichia unidentata (Draparnaud, 1805) — Kvasznij, Haverla.

Family Helicidae

Arianta arbustorum (C. Linnaeus, 1758) — Lonka, Kvasznij, Haverla, Uglya.
Campylaea faustina (E. A. Rossmässler, 1835) — Lonka, Kvasznij, Haverla, Uglya.
Chilostoma banatica (E. A. Rossmässler, 1838) — Lonka.
Helix pomatia C. Linnaeus, 1758 — Lonka, Kvasznij, Haverla, Uglya.
Isognomostoma isognomostoma (Schröter, 1784) — Kvasznij, Haverla, Uglya.

Family Bradybaenidae

Bradybaena fruticum (O. F. Müller, 1774) — Lonka, Kvasznij, Haverla.

Family Arionidae

Arion circumscriptus Johnston, 1828 — Uglya.
Arion fasciatus (S. Nilsson, 1822) — Uglya.
Arion silvaticus Lohmander, 1837 — Uglya.
Arion subfuscus (Draparnaud, 1805) — Uglya.

Species composition of snails in the reserves

22 recent species were found in 25 sites of Lonka (Kuzi), mainly in the valley of the Jalina Brook and on the Tempa Mountain, on 18th July, 1998. 15 species were found in 20 sites of the Kvasznij (Kvasnivchik), mainly in the valley of Kvasznij Brook and on the lower slopes of the Petros Mountain, on 20–21st July, 1998. 28 species were found in 35 sites of the Haverla (Goverla), in the valley of the Haverla Stream and on the Haverla Mountain up to 1800 m, on 22–26th July, 1998. 30 species were found in 40 sites of the Uglya (Mala Uholjka), mainly on the Uglya Mountain and in the middle reaches of the valley of the Little Uglya Stream, in 27–29th July, 1998. Among the species recorded from the four areas investigated, 13 have not been listed by Bajdashnikow (1988). These are the following: *Balea stabilis*, *Macrogastra plicatula*, *Oxychilus draparnaudi*, *Deroceras reticulatum*, *D. sturanyi*, *Limax maximus*, *Monachoides incarnata*, *Trichia hispida*, *T. lubomirskii*, *T. unidentata*, *Chilostoma banatica*, *Arion circumscriptus*, *A. fasciatus*.

In the higher zones (between 1500 and 1600 m) solitary specimens of *Vestia gulo* (E. A. Bielz, 1859) can be found, which are considerably larger than the ordinary specimens with 15–17 mm of average length of shell. As for clausiliids, *Macrogastra latestriata* (A. Schmidt, 1857) and *Cochlodina orthostoma* (Menke, 1830) are abundant in all the four reserves. *Campylaea faustina* (E. A. Rossmässler, 1835) and *Bradybaena fruticum* (O. F. Müller, 1774) are also numerous; the latter is present all over the streamsides, although does not live in higher zones. The Uglya Mountain and the valley of the Uglya Stream are preferred habitats of daudebardiids and limacids, including *Bielzia coerulans* (Bielz, 1851), specimens of which come in various colours and sizes. Their colour ranges from bluish red-orange to dark blue, while specimens of 160–180 mm in length are common among the average specimens of 100–140 mm.

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